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1: *Inhal Toxicol* 2000 Jul;12(7):641-647

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Acute Effects of Smoking of Cigarettes with Different Tar Content on Plasma Oxidant/Antioxidant Status.

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In this study, acute effects of two different types of cigarette smoking on plasma oxidant/antioxidant status were investigated. For this purpose, malondialdehyde (MDA) levels and antioxidant potential (AOP) values were measured in the plasma samples before and after cigarette smoking at fasting. After the first blood sample was obtained, second and third samples were withdrawn at 1.5 h and 3 h. In the first group, subjects smoked five cigarettes with full flavor (FF), and in the second group, five cigarettes with full-flavor low tar (FFLT). Quality classification is made mainly on the basis of tar content of the products. The cigarette with 23 mg tar is defined as FF and that with 12 mg tar as FFLT. MDA level was found to be significantly increased in the 1.5-h plasma samples of both groups, but the increase was greater in the FF group. AOP values, however, were found to be lower in the 3-h plasma samples of both groups, but the decrease was greater in the FF group compared with the FFLT group. It appears that acute smoking causes oxidant stress in blood plasma once exposed to smoke, and then this effect (MDA) begins to decrease. On the other hand, AOP is lowered due to oxidant stress created by smoke. With regard to the types of cigarettes, the FF product seems to be more oxidant than the FFLT product. Our results suggest that antioxidant supplementation might be beneficial for the smokers to cope with the oxidant load derived from cigarette smoke. It is also clearly seen from these results that cigarette manufacturers should reduce tar/nicotine ratio in their products in order to lessen the toxic effects of smoking without causing increased need to smoke.

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